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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|-------------------------------|
| 09/583,629 | 05/31/2000 | Samuel A. Cooper | 15676-223495 | 4026 |
| 33072 | 7590 | 07/18/2005 | | EXAMINER RUTLEDGE, DELLA J |
| KAGAN BINDER, PLLC SUITE 200, MAPLE ISLAND BUILDING 221 MAIN STREET NORTH STILLWATER, MN 55082 | | | ART UNIT 2851 | PAPER NUMBER |

DATE MAILED: 07/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

QH

| | | |
|------------------------------|-----------------|---------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/583,629 | COOPER ET AL. |
| | Examiner | Art Unit |
| | D. Rutledge | 2851 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-30 is/are pending in the application.
 - 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) Claim(s) ____ is/are allowed.
- 6) Claim(s) 1-30 is/are rejected.
- 7) Claim(s) ____ is/are objected to.
- 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.

- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: ____.

DETAILED ACTION

Revocation of Allowance of the Claims

1. On further review and consideration, the allowance of all of the claims has been revoked. See the new art rejection discussed below. The Office sincerely regrets any inconvenience this revocation has caused the applicant.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1 – 11, 14 – 18, 21 - 30 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over **Yaegashi et al. (US Pat. No. 6,097,469)**.

The reference discloses a plurality of processes to manufacture a substrate, including development - (section 20 in Fig. 1 and step S12 in Fig. 3A). The reference teaches that when the concentration of the alkaline solution used in the coating and developing

processing is not within a certain range accurate line widths can not be realized – column 1, lines 23 – 67. In order to solve this problem, the reference teaches interrupting the coating and developing processes with an interrupt signal, taking action that will adjust the concentration of the alkaline solution, and then resume the coating and developing processes see Fig. 3B and column 7, lines 20 – 29, column 8, lines 42 to column 10, line 54. The reference only shows the coating section 10 with the spin chuck 16, presumably because the developing section 20 would be similarly constructed as is often the case, since spin coating is a common development method, thus one of ordinary skill in the art would use a spin coating developing unit for whatever advantages such a unit would provide. The concentration sensor sends a signal that the concentration is out of range, this is the trigger event. – Claim 1, 9, 21 – 24, 29

In column 9, lines 18 – 33, discloses a second method in which the coating section 10 and developing section 20 are interrupted, while the other processes 11 – 14, 40 are given the command to complete the processing of the non – processed substrate W, then all of the processing operations are completed. In the third method all the processes 10 – 14, 20, 40 are given the interrupt signal, but all are allowed to complete the non – processed wafer. In both methods two and three, the interrupt routine causes processes to be executed and after whatever alkaline solution adjustment step is taken, the processes continue to process the substrate in a normal manner. In order to continue processing the non – processed substrate, the interrupt signal or routine must generate timers for these operations in order to determine when to stop the operation

upon completion of the processing through software and/or hardware interrupt. Thus a single event would lead to parallel operations or commands being executed. The central processing unit CPU 60 is notified of the interrupt since the CPU issues the alarm and controls all the processes . – claims 2, 3, 5, 6, 10, 11, 14, 15, 18, 25 – 28, 30

Column 10, lines 23 – 28 states that the concentration is detected at least from resist coating step S8 to the developing step S12. In which case the interrupt may be generated at any time and during any particular operation of those processes – claims 7, 8, 16, 17

5. Claims 12, 13, 19, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Yaegashi et al. (US Pat. No. 6,097,469)**.

The reference does not provide duration times, but given the severity of the result if the concentration is not adjusted, one of ordinary skill in the art, at the time the invention was made, would be motivated to make the correction or duration in the shortest time possible considering efficiency and waste cost; and would use an accurate timer or else one would be defeating the purpose of trying to quickly correct the problem.

Response Data

Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. Rutledge whose telephone number is (571) 272-2127. The examiner can normally be reached on Mon - Thurs, 6:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



D. Rutledge
Primary Examiner
Art Unit 2851

dr
6/30/2005